Its favorite location is between the bark and wood of a decaying log or stump, and it always selects a cool, shady and rather moist spot. It prefers maple, elm or ash. I have never found it in connection with any of the resinous varieties of wood.

Now, different kinds of wood in decaying, form products of varying shades of color. Thus decayed maple is almost black; elm is dark brown; ash is light brown; beech is still lighter, and birch has a reddish tinge. It is no less true that the shells of the *H. alternata* differ in shade and resemble that of the wood in which they are found, and which forms a part of their food. Thus those found in maple are almost black; those in elm are dark brown; those in ash are light brown; those in beech are still lighter, and those in birch have a reddish tinge. I have shells in my collection extending through almost every gradation of color, from black to ashy-white. In some the black stripes predominate and almost obliterate the white ones. In others the black stripes are almost wholly wanting, and in a few they are replaced by reddish colored stripes, indicating in every case the nature of the hiding-place of each individual.

Again, the bark of decaying trees clings much more tightly under some conditions than under others, and this has a marked effect upon the upper surface of the shell. I have one shell which is almost as convex as the *H. albolabris*. I recollect that it was found in a cavity where its upper surface could never be touched. Another was found in a narrow crevice, where it had barely room to squeeze itself, and its upper surface is perfectly flat, and it might well be taken for a subspecies. Between these extremes every variation of angle may be found, all seeming to result from a greater or less degree of pressure. Or, rather, having been governed by the height of the crevice in which they developed.

Theoretically, the supposition may have one or two slight objections which it is not necessary to mention, but it is based upon several hundred observations, and I believe it to be correct.

TWO NEW PISIDIA.

BY DR. V. STERKI.

Pisidium pauperculum n. sp.

Mussel of moderate size, rather oblique, moderately to rather strongly inflated; beaks slightly posterior, moderately large and prominent, rounded; scutum and scutellum slightly marked; edges

acute or acutish, not pinched; superior and inferior margins moderately curved, posterior well rounded or slightly truncated, joining the inferior without any marked angle; antero-superior margin sloping, oblique, slightly curved, meeting the inferior at an angle situated rather inferior, more distant in the adult than in younger examples; surface very finely striated, polished; color pale or yellowish to greenish-horn, sometimes whitish or straw in old specimens; shell thin, translucent; hinge moderately strong; cardinal teeth of the right valve moderately curved, its posterior end thickened, those of the left valve lamellar, almost equal, the superior rather short, slightly oblique and little curved; lateral teeth rather strong; ligament short, thin.

Long. 3·2, alt. 2·7; diam. 1·9 mill., in the average.

It has a wide geographical distribution, and is one of the most common Pisidia, having been seen from Massachusetts: Winchester (E. W. Roper); New York: Mohawk, Herkimer County, Erie Canal (E. W. Roper, A. Bailey, Dr. Jas. Lewis); Hudson River (R. E. C. Stearns); Pennsylvania: Philadelphia, in different waters (M. Schick); New Jersey: White Pond, dredged (Pilsbry and Rhoads); Michigan: Ann Arbor, High Island Harbor in Lake Michigan; East Saginaw, Pine Lake, dredged (Br. Walker); Grand Rapids (L. H. Streng); Wisconsin: Fox River (Geo. T. Marston); Minnesota: Clearwater and Mississippi Rivers, Heath Lake (H. E. Sargent); fossil, at White Pond, N. J. (Pilsbry and Rhoads).

Our species is one of modest appearance, and yet somewhat unique. Being so common, it has evidently been overlooked, or taken for younger specimens of some others, owing to its want of striking features; hence the name given to it. Almost always the mussel is more or less coated with a blackish or rusty substance in a rather characteristic way, especially over the beaks and upper part, even when found in company with other Pisidia not thus coated, so that this is a feature of the species, usually independent of the habitat. Yet sometimes all specimens in a place are found clean, e. g., those (dredged) from White Pond, New Jersey. Dead shells are of a rather characteristic plumbeous-gray color.

The species is variable, though being more constant in each place. There are marked differences in size and shape, prominence of the beaks and color. Especially notable is a form from Michigan, with less curved superior and inferior margins, the posterior end more abrupt, obliquely, so that the outline of the mussel resembles an ob-

lique parallelogram; others, from Michigan and Minnesota, are very high, the altitude equalling or even exceeding the length. Some of these local forms may prove to be true varieties.

This Pisidium has caused considerable trouble, correspondence and controversy for a long time. Almost two years ago it was recognized as a well-defined species, and given its present name. Then Mr. E. W. Roper obtained a type specimen of *Pis. ferrugineum* Prime, from the Museum of the Boston Society of Natural History, which he kindly sent me for comparison, and we were both satisfied at once that it was identical with the present species. Several examples, of T. Prime's own hand, also named *P. ferrugineum*, from "New York," in my collection, probably none of them mature, are of the same species. After this, the present name was suppressed, although it was evident that all these Pisidia were very far from being congruent, as to size and shape, with the author's description and figures of *Pis. ferrugineum*, in Mon. Pis. and Mon. Corbiculadae. Among the thousands of specimens seen from New England and New York, none could be referred to these descriptions, and so necessarily the question arose: What, and where, is the true *P. ferrugineum* of Prime[1] Last winter, Mr. Roper received several lots of Pisidia from Cambridge and Waltham, Mass., and from Maine, and obliged me by forwarding them for examination. Among them there was undoubtedly the long sought for *Pis. ferrugineum*, in every particular conforming with the author's description as well as the figures in Mon. Pis. (Pl. XII, figs. 8, 9, 10). Now we knew also that *Pis. pauperculum* was distinct and deserving a name of its own. The mixing up of the two species by Prime, is explained by the fact that both of them are usually covered with a dark or blackish "ferruginous" substance, in the same way, giving them the same outward appearance, the more so as in some forms or specimens of *Pis. pauperculum* the beaks are rather high and prominent, though rounded, and not "tubercular," without ridges (Conf. the figures cited above). Under the impression that they were identical, the author could say that *P. ferrugineum* was one of our most common species, while properly restricted, it seems to be rather rare.

Pisidium scutellatum n. sp.

Mussel of medium size, rather high, oblique, markedly protracted downward in its anterior part, well rounded, rather strongly in-

[1] The author himself could not be consulted, since he had given up, long ago, the study of these mussels.

flated; beaks much posterior, rather large, prominent rounded; superior margin short, little curved, or almost straight, scutum and scutellum well marked, forming projecting angles; the other margins well curved, or the posterior very slightly truncated, anterior end well rounded, or with a slight indication of an angle; surface polished, with irregular striae and some coarse lines of growth; shell thin, transparent, of a yellowish-horn to amber color, often grayish or brownish-horn in old specimens, and whitish on the beaks; nacre glassy, inner surface microscopically rugulose; hinge fine, short, cardinal teeth lamellar, the one in the right valve moderately curved, its posterior end thicker; the inferior in the left valve curved, the superior little so or almost straight; lateral teeth very short, very abrupt, pointed, thin, little projecting into the cavity of the mussel; ligament small.

Long. 4·0, alt. 3·6, diam. 2·8 mill.

Long. 3·3, alt. 2·8, diam. 2·4 mill. or less (deep water form).

The center of its distribution is in the region of the Great Lakes, where it seems to be common, especially northward, in the great and small lakes and rivers. It has been dredged from deep water in different places: Pine Lake, 5–11 meters; Lake Michigan, off New York Point, 24 meters; also taken from the stomachs of white fish of Lake Michigan. These deep water forms, almost all dead shells, were first seen among materials sent by Mr. Bryant Walker, in 1894. Later, fresh specimens in lots from different places in Michigan were sent by Mr. Bryant Walker, L. H. Streng and Geo. T. Marston; from different waters of the Mississippi drainage, in Minnesota, by Mr. H. E. Sargent. A few specimens, in two identical lots, in Br. Walker's and Roper's collections, from Shendon, Montana, at an elevation of 9000 feet, have much resemblance with our species, yet differ in some points, and it will take more materials to ascertain whether they are identical or not.

This is one of our most characteristic Pisidia, distinguished, beside its surface features, color and the configuration of the hinge, by its oblique shape and the much larger anterior part. This character it has in common with *Pis. virginicum* Gmel. and *walkeri;* the former of these is out of the question; the latter species is much more elongated, its beaks are much smaller, the outline is more angular, and the surface dull, from microscopic lamellae, but even.

Pis. scutellatum is somewhat variable: the largest specimens seen, from Orchard Lake, Mich., are 4·5 mill. long. Those from deep

water are the smallest and most inflated, and their beaks are commouly more prominent; some of them have crowded striae of growth.

New Philadelphia, O., Sept., 1896.

ISAAC LEA DEPARTMENT.

[Conducted in the interest of the Isaac Lea Conchological Chapter of the Agassiz Association by its General Secretary, Mrs. M. Burton Williamson.]

NOTES ON SOME SHELLS OF PUGET SOUND.

[Extract from the report of Mrs. M. Drake. From the Transactions of the Isaac Lea Conchological Chapter for 1895.]

In January, I went out to Gig Harbor, but the tides were not good and I got few shells. About seventy *Pterorhytis foliatus* were found at Point Richmond, some of them quite large with rich brown bands. We find this shell at quite low tide, clinging to the rocks in much the same way as *Purpura crispata*, and its operculum is very much like that of the Purpura, only it is of a deeper brown and stronger. A horn is on each one of its three wing-like varices. As it grows in strong currents, its shell is heavy and not easily broken.

I also collected (dredged) some young *Pecten hastatus* which are plain in color, and without the lovely spines of the adult. We found them attached to kelp. The young are attached to kelp by their byssus, while the larger ones are free swimming, and can move quite rapidly through the water. We take most of them in several feet of water, with a dip-net, at low tide.

We find four species of Saxidomus, they are *Saxidomus nuttalli*, *S. squalidus*, *S. aratus* and *S. brevisiphonaria*. As the last name indicates, that species has short siphons, and it is more rounded, shorter and has a stronger shell. I found two species of Cardium at Brown's Point, one being in somewhat deeper water than the other, with a rougher, heavier and plainer shell. The animal is also different. By the way, how can conchologists be sure of the differences and resemblances of closely allied shells without studying the living animals?[1] I am sure I could not have seen so much beauty

[1] Here is where we amateurs may add to the general knowledge by studying the animal in its habitat while it is yet alive.—M. B. W.